IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES
Attorney Docket No. 004770.00025

In re U.S. Patent Application of Walsh, *et al.*	)	Confirmation No. 2223
Application No. 10/027,048	)	Examiner: Ramsey Refai
Filed: December 20, 2001	)	Group Art Unit: 2152
For: Cluster Filtering	)	

BRIEF ON APPEAL

MS: Appeal Brief- Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Pursuant to 37 CFR §41.37, Appellant submits this Appeal Brief to the Board of Patent Appeals and Interferences in response to the Final Rejection mailed on August 11, 2006 and the Pre-Appeal Panel Decision mailed January 29, 2007. A request for a one-month extension is being submitted in conjunction with this Appeal Brief. The Commissioner is authorized to charge any fees owed or credit any overpayment of fees to Deposit Account No. 19-0733.

I. Real Party in Interest

The real party in interest is Nokia Corp., the owner of the entire right, title and interest in and to the subject application.

II. Related Appeals and Interferences

There are no appeals or interferences related to the subject appeal.

III. Status of the Claims

Claims 1-26, which are involved in the appeal, stand finally rejected by a Final Office Action mailed August 11, 2006 and are found in the Appendix. No claim is allowed.

IV. Status of Amendments

No after final amendments were requested or are pending.

V. Summary of Claimed Subject Matter

Aspects of the present invention, which relate to claims 1-26, are directed toward a device and method for filtering data with fixed length filters based on received identification of at least two clusters of discrete segments of data. In an embodiment a device includes a filter module (208) (*see* specification, pg. 5, ¶ 22, ln. 1) comprising a plurality of fixed length filters. A cluster mapping module (204) (*see* specification, pg. 4, ¶ 20-21) contains control logic for performing steps including receiving the identification of at least two clusters of the discrete segments of data; and selecting at least two of the plurality of fixed length filters (such as filters 208a-208f – *see* specification, pg. 5, ¶ 22, ln. 1) to filter the at least two clusters. In another embodiment, a method of generating a filter map is provided. The method includes the steps of receiving the identification of at least two clusters of the discrete segments of data (step 602 of Figure 6; *see* specification, pg. 7, ¶ 28); and selecting at least two of a plurality of fixed length filters to filter the at least two clusters (*see* step 604; see specification, pg. 7, ¶ 28). The filters may be combined to form a filter mask and the filter mask may be used to filter the incoming packets. *See* specification, pg. 4, ¶ 20-21; Figure 6, step 608 as well as pg. 7, ¶ 29. In other embodiments, computer-executable instructions or control logic for implementing the disclosed methods are stored on computer-readable media or implemented with hardware modules (*see* specification, pg. 8, ¶ 31, ln. 4-7). Claims 1, 12, 18 and 23 are independent.

Regarding independent claim 1, which is directed toward a device for filtering data that is formatted in a packet having discrete segments recites the feature of "a mapping module (204) that contains control logic for performing steps" and an embodiment of a mapping module is describe in the specification on pg. 4, ¶ 20, ln. 1-17, as well as pg. 5, ¶ 23, ln. 1-9, as well as shown in Figures 2 and 2A. Claim 1 further recites that the mapping module is configured to

perform the step of "receiving an identification of at least two clusters of the discrete segments of data" and an embodiment of this feature is described in the specification on pg. 7, ¶ 28, ln. 1-12, as well as shown in step 602 of Figure 6. Claim 1 further recites that the mapping module is configured to perform the step of "selecting at least two fixed length filters from a plurality of fixed length filters to filter the at least two clusters, wherein each of the selected at least two fixed length filters has an offset value corresponding to a beginning of one of the at least two clusters" and an embodiment of the feature is described in the specification on pg. 7, ¶ 28, ln. 1-12, as well as shown in Figure 6 in step 604 and step 606.

Looking next at independent claim 12, this claim is directed toward a method of generating a map for use by a filter module to filter clusters of data. Claim 12 recites the step of "receiving the identification of at least two clusters of the discrete segments of data" is recited and an embodiment of this step is described in the specification on pg. 7, ¶ 28, ln. 1-12, as well as shown in step 602 of Figure 6. Claim 12 further recites the feature of "selecting at least two of a plurality of fixed length filters to filter the at least two clusters" and an embodiment of this step is described in the specification on pg. 7, ¶ 28, ln. 1-12, as well as shown in step 604 of Figure 6.

Looking next at independent claim 18, this claim is directed to a computer readable medium containing computer-executable instructions for causing a mapping module to generate a map for use by a filter module to filter clusters of data found in a packet of data, the computer-executable instructions cause the mapping module to perform certain steps. Claim 18 recites the step of "receiving the identification of at least two clusters of the discrete segments of data" and an embodiment of this step is described in the specification on pg. 7, ¶ 28, ln. 1-12, as well as shown in step 602 of Figure 6. Claim 18 further recites the step of "selecting at least two of a

plurality of fixed length filters to filter the at least two clusters" and an embodiment of this step is described in the specification on pg. 7, ¶ 28, ln. 1-12, as well as shown in step 604 of Figure 6.

Looking next at independent claim 23, this claim is directed toward method of generating a map for use by a filter module to filter clusters of data found in a packet of data. Claim 23 recites the step of "receiving identification of a first cluster of discrete data in a first segment of a packet and a second cluster of discrete data in a second segment of the packet" and an embodiment of this step is described in the specification on pg. 7, ¶ 28, ln. 1-12, as well as shown in step 602 of Figure 6. Claim 23 then recites the step of "selecting a first fixed length filter having a offset value corresponding to the first cluster from a plurality of fixed length filters" and an embodiment of this step is described in the specification on pg. 7, ¶ 28, ln. 1-12, as well as shown in step 604 of Figure 6. Claim 23 next recites the step of "selecting a second fixed length filter having a offset value corresponding to the second cluster from the plurality of fixed length filters" and an embodiment of this step is described in the specification on pg. 7, ¶ 28, ln. 1-12, as well as shown in step 604 of Figure 6. Claim 23 then recites the step of "providing a cluster map including the first and second fixed length filters" and an embodiment of this step is described in the specification, starting on pg. 7, ¶ 29, ln. 1-12, as well as shown in step 608 of Figure 6.

VI. Grounds of Rejection to be Reviewed on Appeal

Claims 1-9, 11-26 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,951,651 to Lakshman *et al.* ("Lakshman"). Claim 10 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Lakshman. The rejection based on 35 U.S.C. § 112, ¶ 1 has been withdrawn. The rejection of claims 1-26 is being appealed.

VII. Argument

The discussion below, unless otherwise noted, addresses the rejected independent claims 1, 12, 18 and 23, as well as dependent claims 2-3, 5, 10, 16 and 22. Appellants respectfully request that the rejection of the remaining dependent claims 2-9, 11, 13-17 and 24-26 be reversed for at least the reasons supporting reversal of the rejection of the independent claims from which they depend and for the additional limitations recited therein.

A. The Feature "selecting at least two fixed length filters from a plurality of fixed length filters to filter the at least two clusters" is Not Inherently or Implicitly Disclosed By Lakshman.

As noted above, claims 1-9 and 11-26 stand rejected as being anticipated by Lakshman. Independent claims 1, 12 and 18 all recite a feature similar to the feature "selecting at least two fixed length filters from a plurality of fixed length filters to filter the at least two clusters" recited by claim 1, discussed below, and therefore are not anticipated for at least the reasons discussed with respect to claim 1. The Examiner also rejected claim 23 on the same basis as claim 1, 12 and 18, thus the arguments below also apply to independent claim 23.

1. The Examiner admits that Lakshman fails to expressly disclose fixed length filters.

As an initial matter, the Examiner admits that Lakshman does not explicitly disclose fixed length filters. *See* Final Office Action, pg. 2. Therefore, the fixed length filters must either be implicitly or inherently disclosed by Lakshman. However, as will be seen below, no support exists for the suggestion that fixed length filters are implicitly or inherently disclosed by Lakshman.

2. The cited portions of Lakshman do not support the suggestion that fixed length filters are inherently or implicitly disclosed by Lakshman.

When rejecting claim 1, 12, 18 and 23, the Examiner argued that Lakshman, Col. 4, ln. 54-55; and Col. 5, ln. 7-16 discloses the recited fixed length filters. Final Office Action, pg. 5. Regarding Col. 4, ln. 54-55 of Lakshman, this portion of Lakshman discusses using bit-map vectors to ascertain the potential filters. However, absolutely no mention of fixed length filters is made, nor would a fixed length filter be implicit or inherent in Lakshman based on this discussion. Regarding the second portion, Lakshman, Col. 5, ln. 7-16, this portion of Lakshman discusses how bit-map vectors are formed and explains how bit-map vectors may be compared to see if the bit-map vectors share common filters. Lakshman then explains that operations may be performed on the bit-map vectors to generate a new bit-map vector. Lakshman, Col. 5, ln. 16-22. However, this portion of Lakshman provides no support for the suggestion that Lakshman inherently or implicitly discloses fixed length filters. Furthermore, this portion of Lakshman doesn't even really address the selection of filters in the first place, let alone fixed length filters, but instead merely discussed forming bit-map vectors. However, as the Examiner has also admitted that bit-map vectors are not filters, see Final Office Action, pg. 3, these portions provide no support for the Examiner's position.

The Examiner also suggested that additional support for this rejection exists in Figures 3, 5 and 6 and in Col. 3, ln. 35-56; Col. 2, ln. 22-38; and Col. 5, ln. 6-34. Looking first at the Figures, Figure 3 illustrates mapping of address ranges to determine window intervals and plainly does not disclose a fixed length filter. Therefore, Figure 3 merely shows that certain filters apply to fixed ranges of values (such as a particular range of IP addresses) and simply does not address the actual length of the filters. Figure 5 illustrates the combining of two bit-map vectors and therefore cannot disclose a fixed length filter (because bit-map vectors are

admitted to not be filters). Finally, Figure 6 illustrates memory organization for the filter architecture of the system and does not even suggest fixed length filters. Therefore, the Figures provide no support for the suggestion that Lakshman inherently or implicitly discloses fixed length filters.

Turning to the cited portions of Lakshman, no additional support is found for the suggestion that Lakshman inherently or implicitly discloses fixed length filters. For example, Lakshman, Col. 2, ln. 22-38, which is from the summary of the invention and lacks any real details, merely discloses that all filter rules associated with particular packet parameters are bit mapped to vectors associated with that parameter so that when a packet is received, the bit-map vector can be used to determine the filter rules that should be applied. Absolutely no mention of a fixed length filters is made, indeed this portion of Lakshman makes it clear that Lakshman functions differently and does not even contemplate the notion of fixed length filters but instead uses bit-map vectors to determine what filters should be applied to particular packet parameters.

Regarding Col. 3, ln. 35-56, this portion of Lakshman merely explains how filters apply to certain ranges of, for example, a source IP address of a packet. However, the filters do not have fixed lengths but instead have fixed ranges to which they apply. Therefore, this section provides no support for the suggestion that Lakshman inherently or implicitly discloses fixed length filters.

Finally, the Examiner also points to Col. 5, ln. 6-34 of Lakshman. However, this section of Lakshman merely explains that rules associated with a window of a dimension (where the dimension corresponds to a packet parameter and the window corresponds to a range of values for a particular rule) are used to generate a bit-map vector that corresponds to all the rules that apply to that particular window. In other words, for a particular packet parameter or dimension

(such as source IP address), a plurality of bit-map vectors may exist that will each correspond to a particular window or range of source IP values and each bit-map vector will indicate the filters that apply to that particular window. Therefore, this portion of Lakshman provides no support for the existence of fixed length filters and instead merely provides support for the existence of filters that apply to a fixed range of values. Therefore, the Examiner has failed to provide any support for the suggestion that Lakshman inherently or implicitly discloses fixed length filters.

B. **<u>The Feature "receiving an identification of at least two clusters of the discrete segments of data" is Not Disclosed by Lakshman.</u>**

The independent claims 1, 12, 18 and 23 all recite a feature similar to the feature of claim 1, which is directed toward the step of "receiving an identification of at least two clusters of the discrete segments of data." The Examiner suggests this is disclosed by Lakshman at Col. 4, ln. 48-54, which is provided below:

> During on-line processing, when the router receives a new packet, a comparison is made between each parameter, e.g., a source address, specified in the received packet header with the window intervals w_i of the particular array corresponding to that dimension, to determine the applicable window interval. Consequently, from the bit-map vectors stored in memory the potential filters can be ascertained. This may be performed by any standard technique, such as

This portion of Lakshman, however, merely discloses that <u>each</u> parameter of a packet is checked to see what window (and the corresponding bit-map vector) applies to the particular parameter based on the value of the parameter in the packet. Notably, this portion of Lakshman makes no mention of receiving the identity of particular parameters, assuming that parameters are being read as clusters of discrete segments of data. Instead Lakshman teaches that every parameter is reviewed. Therefore, the concept of receiving the identity of particular clusters is simply foreign to Lakshman.

C. **<u>The Feature "wherein each of the selected at least two fixed length filters has an offset value corresponding to a beginning of one of the at least two clusters" is Not Contemplated By Lakshman.</u>**

Independent claim 1 further recites the feature of "wherein each of the selected at least two fixed length filters has an offset value corresponding to a beginning of one of the at least two clusters." The Examiner disagreed and argued that:

> In response, the Examiner respectfully disagrees. Lakshman teaches that a vector is generated corresponding to each of the parameters; the vector structure indicates <u>one or more potential filters to be applied the packet for each parameter</u>. Lakshman further teaches in Figures 3 and 5 that filters have different dimension and window intervals. In an example while referring to Figure 5, Lakshman teaches that corresponding filter rules are applied to a packet by applying the filter with the highest priority. The filters are ordered in terms of significance and <u>the first bit *that is a 1 will designate the filter that must be applied to the packet*</u> (See column 5, lines 6-34 and Figures 5-6). Therefore Lakshman meets the scope of the claimed limitations.

Final Office Action, pg. 3. As an initial matter, Appellants respectfully assert that the above statements mischaracterize Lakshman and are incorrect. Lakshman teaches that for each parameter (e.g., source IP address), a plurality of bit-map vectors may exist, and each bit-map vector corresponding to a window (or range) of values of the particular parameter. *See* Lakshman, Col. 5, Ln. 35-50. However, the Examiner's point about how Lakshman works, while incorrect, merely goes to the issue of how a particular parameter is filtered and makes no mention of how the filter is applied to the parameter of the packet. Thus, even if the combination of filters that apply to a particular parameter could be read as a single filter, Lakshman still does not discuss how the filter is applied to that parameter. Therefore, the Examiner has provided absolutely no support for the suggestion that Lakshman discloses that the filter of a particular

parameter has an offset value. Instead, Lakshman at most can be said to disclose a way to filter each parameter of a packet. Indeed, it appears that Lakshman filters in the conventional manner by filtering continuous segments of data. See Lakshman, Col. 5, Ln. 46-51 ("For each packet received, an on-line search process is performed, preferably simultaneously, as indicated by parallel process 125a,..., 125n, to determine whether <u>each packet header parameter</u> belongs to a corresponding window(s) partition wi of its corresponding array for each dimension k=1 to k=n." (emphasis added)). In contrast, claim 1 relates to how filtering is applied to the parameters and this is simply not discussed or contemplated by Lakshman. Thus, for at least the above reason the Examiner has failed to provide support that Lakshman discloses the above feature of claim 1.

D. <u>The Examiner has Provided No Support for the Suggestion That it Would Be Obvious to Use the System of Lakshman with DVB-T Protocol as Recited in Claim 10.</u>

Dependent claim 10 depends from claim 9, which recites the feature that the receiving of the identification in claim 1 is "receiving an identification of a protocol of the data and a value." Claim 10 recites the additional feature that "the protocol comprises DVB-T and the value comprises an IP address." Appellants previously argued that there is no support for the suggestion that it would be obvious to use Lakshman with DVB-T protocol. In particular, Lakshman discusses a number of protocols that the system could be used for but makes no mention of any video protocol. See Lakshman, Col. 1, ln. 21-24. In addition, as Lakshman teaches that every parameter of the packet is searched, the method of Lakshman would be relatively slow for a system where packets need to be routed in a rapid matter, such as video protocols like the DVB-T protocol. Furthermore, Lakshman requires off-line preparation, *see* Lakshman, Col 3, Ln. 36-41, and would be ill-suited to a system of DVB-T where changes to whom could receive what could be very frequent. Therefore, a person of skill in the art would

not be motivated to use Lakshman in the provision of DVB-T protocol and the rejection lacks support.

E. The Rejection of a Number of the Dependent Claims Based on Features of the Bit-Map Vector in Inconsistent With the Admission That the Bit-Map Vector is Not a Filter.

As noted above, the Examiner has admitted that the bit-map vector is not a filter. However, the Examiner then argues that the certain details of the fixed length filter, such as the features recited in claim 2, 3, 5, 16 and 22, are disclosed by portions of Lakshman that relate to details of the bit-map vector. Plainly, aspects of the configuration of the bit-map vector, which is not a filter, cannot support the suggestion that Lakshman discloses filters with features only disclosed as being part of the bit-map vector. Rather, these rejections reflect a misunderstanding and an inconsistent reading and use of Lakshman.

For example, claim 2 recites the feature of "wherein the plurality of fixed length filters have a common length." The Examiner points to the Col. 4, ln. 30-33 of Lakshman but this portion of Lakshman merely discloses that the bit-map vector may be 512 bits long. Plainly, as the bit-map filter is admitted to not be a filter, the fact that Lakshman discloses the bit-map vector may be a constant length provides no support to the Examiner's suggestion that Lakshman discloses the above recite feature of claim 2. Furthermore, Lakshman simply does not discuss the concept of a filter with a constant length that could be used to filter all the parameters of a received packet.

Claim 3 recites the feature that "each of the plurality of fixed length filters is 2 bytes." The Examiner suggests that this is disclosed by Lakshman, pointing to Figure 5, element 75b. However, Lakshman discloses that element 75b is an example of a bit-map vector, see Lakshman, Col. 4, ln. 42. Therefore, even if Lakshman did disclose that the bit-map vector 75b could be 2

bytes this would not provide any support for the rejection of a claim such as claim 3 that recites the features of "the plurality of fixed length filters is 2 bytes."

Claim 5 recites the feature of "wherein at least one of the plurality of fixed length filters has the offset value of 0" and the Examiner suggests that this is disclosed by Lakshman, pointing to Lakshman, Col. 4, ln. 33-36. This section of Lakshman, however, explains that the bit values of bit-map vector may be zero, which is unrelated to the offset of a filter and merely indicates whether a filter will apply to the particular range of values that the bit-map vector applies to. Thus, this section of Lakshman provides no support for the Examiner's position.

Claim 16 recites the step of "selecting offset values for the at least two of the plurality of fixed length filters." Claim 22 recites a similar feature. The Examiner suggests that Lakshman, Col. 5, ln. 25-28 discloses this feature. However, this portion of Lakshman refers to the setting of the bits in the bit-map vector and these bits merely determine which filter is applied. Thus, the disclosure of Lakshman regarding how the selection of filters for a particular bit-map vector may be accomplished provides no support for the recited features of claims 16 and 22.

In summary, the rejections of at least claims 2, 3, 5, 16 and 22 are logically inconsistent with the admission that the bit-map vector is not a filter. When the cited portions of Lakshman are considered, these rejections cannot be considered supported by Lakshman under any reasonable reading of Lakshman. Thus, for these additional reasons the rejection of these claims should be withdrawn.

VIII. Conclusion

The rejections contained in the Final Office Action of August 11, 2006 should be reversed for at least the reasons recited above. Reversal of the rejections is requested.

Respectfully submitted,

Date: March 9, 2007

/Stephen l. Sheldon/

Stephen L. Sheldon
Registration No. 58,732

BANNER & WITCOFF, LTD.
10 S. Wacker Drive, Suite 3000
Chicago, IL 60606-7407
Telephone: 312-463-5000
Facsimile: 312-463-5001

CLAIMS APPENDIX

1. A device for filtering data, wherein the data is formatted in a packet having discrete segments, the device comprising:

a mapping module that contains control logic for performing steps comprising:

(a) receiving an identification of at least two clusters of the discrete segments of data; and

(b) selecting at least two fixed length filters from a plurality of fixed length filters to filter the at least two clusters, wherein each of the selected at least two fixed length filters has an offset value corresponding to a beginning of one of the at least two clusters.

2. The device of claim 1, wherein the plurality of fixed length filters have a common length.

3. The device of claim 2, wherein each of the plurality of fixed length filters is 2 bytes.

4. The device of claim 1, wherein the plurality of fixed length filters is configured so that each of the plurality of fixed length filters has an offset value corresponding to one of the discrete segments of the packet.

5. The device of claim 4, wherein at least one of the plurality of fixed length filters has the offset value of 0.

6. The device of claim 1, wherein a first one of the at least two clusters of data is formatted in accordance with a first protocol and a second one of the at least two clusters of data is formatted in accordance with a second protocol different than the first protocol.

7. The device of claim 1, further including a filter module comprising the plurality of fixed length filters.

8. The device of claim 7, wherein the filter module contains control logic for performing the steps comprising:

receiving the at least two clusters of the discrete segments of data; and

filtering the at least two clusters of the discrete segments of data with the at least two of a plurality of fixed length filters.

9. The device of claim 1, wherein (a) comprises:

receiving an identification of a protocol of the data and a value.

10. The device of claim 9, wherein the protocol comprises DVB-T and the value comprises an IP address.

11. The device of claim 9, wherein the mapping module contains further control logic for performing the step of:

mapping the identification of the protocol of the data and the value to the at least two clusters of the discrete segments of data.

12. A method of generating a map for use by a filter module to filter clusters of data found in a packet of data, the method comprising the steps of:

(a) receiving the identification of at least two clusters of the discrete segments of data; and

(b) selecting at least two of a plurality of fixed length filters to filter the at least two clusters.

13. The method of claim 12, further comprising the step of:

(c) generating a filter mask that identifies segments of the at least two of a plurality of fixed length filters.

14. The method of claim 13, further comprising the step of:

(d) providing filter values.

15. The method of claim 13, further comprising the step of:

(d) generating at least one rule for combining data filtered by the at least two of a plurality of fixed length filters.

16. The method of claim 12, further comprising the step of:

(c) selecting offset values for the at least two of the plurality of fixed length filters.

17. The method of claim 12, wherein a first one of the at least two clusters of data is formatted in accordance with a first protocol and a second one of the at least two clusters of data is formatted in accordance with a second protocol different than the first protocol.

18. A computer-readable medium containing computer-executable instructions for causing a mapping module to generate a map for use by a filter module to filter clusters of data found in a packet of data, the computer-executable instructions cause the mapping module to perform the steps comprising:

(a) receiving the identification of at least two clusters of the discrete segments of data; and

(b) selecting at least two of a plurality of fixed length filters to filter the at least two clusters.

19. The computer-readable medium of claim 18, further including computer-executable instructions for causing the mapping module to perform the step of:

(c) generating a filter mask that identifies segments of the at least two of a plurality of fixed length filters.

20. The computer-readable medium of claim 19, further including computer-executable instructions for causing the mapping module to perform the step of:

(d) providing filter values.

21. The computer-readable of claim 19, further including computer-executable instructions for causing the mapping module to perform the step of:

(d) generating at least one rule for combining data filtered by the at least two of a plurality of fixed length filters.

22. The computer-readable of claim 18, further including computer-executable instructions for causing the mapping module to perform the step of:

(c) selecting offset values for the at least two of the plurality of fixed length filters.

23. A method of generating a map for use by a filter module to filter clusters of data found in a packet of data, the method comprising the steps of:

(a) receiving identification of a first cluster of discrete data in a first segment of a packet and a second cluster of discrete data in a second segment of the packet;

(b) selecting a first fixed length filter having a offset value corresponding to the first cluster from a plurality of fixed length filters;

(c) selecting a second fixed length filter having a offset value corresponding to the second cluster from the plurality of fixed length filters; and

(d) providing a cluster map including the first and second fixed length filters.

24. The method of claim 23, wherein the cluster map includes the offset value of the first and second fixed length filters.

25. The method of claim 23, wherein none of the plurality of fixed length filters overlap.

26. The method of claim 23, wherein all the plurality of fixed length filters overlap.

EVIDENCE APPENDIX

-- NONE --

RELATED PROCEEDINGS APPENDIX

-- NONE --